ORDER NO. HAD8605525C8

Service Manual

Stereo Integrated Amplifier

Amplifier

SU-X77

SU-X77

Color

(K) . . . . Black Type

Color	Areas
(K)	[EX] . . . . Continental Europe
(K)	[EH] . . . . Holland
(K)	[EB] . . . . Belgium
(K)	[EF] . . . . France
(K)	[EK] . . . . United Kingdom
(K)	[EG] . . . . F.R. Germany
(K)	[Ei] . . . . . Italy
(K)	[XL] . . . . Australia
(K)	[XA] . . . . Asia, Latin America, Middle Near East, Africa & Oceania
(K)	[PC] . . . . European Audio Club

SPECIFICATIONS

(DIN 45 500)

■ AMPLIFIER SECTION

1 kHz continuous power output	
both channels driven	2 × 50W (8Ω)
Total harmonic distortion	
rated power at 1 kHz	1% (8Ω)
half power at 1 kHz	0.05% (8Ω)
Damping factor	40 (8Ω)
Input sensitivity and impedance	
PHONO	2.5 mV/47kΩ
TUNER, AUX, CD	150 mV/22kΩ
TAPE 1, 2	150 mV/22kΩ
PHONO maximum input voltage (1 kHz, RMS)	120 mV
S/N	
rated power (8Ω)	
PHONO	72 dB (IHF, A: 73 dB)
TUNER, AUX, CD, TAPE 1, 2	84 dB (IHF, A: 83 dB)
Frequency response	
PHONO	RIAA standard curve ±0.8 dB (30 Hz~15 kHz)
TUNER, AUX, CD, TAPE 1, 2	10 Hz~70 kHz (−3 dB)
Graphic equalizer/spectrum analyzer frequency	63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 12.5 kHz
Graphic equalizer range of variation	±10 dB
Spectrum analyzer dynamic range	20 dB
Output voltage	
REC OUT	150 mV
Channel balance, AUX 250 Hz~6,300 Hz	±1.0 dB
Channel separation, AUX 1 kHz	60 dB
Headphones output level and impedance	420 mV/330Ω
Load impedance	
MAIN	8Ω~16Ω
SURROUND	8Ω~16Ω

■ GENERAL

Power consumption	235 W
Power supply	
For Australia and United Kingdom	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	315×99×252 mm
Weight	4.8 kg

Note:
Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).

Specifications are subject to change without notice for further improvement.

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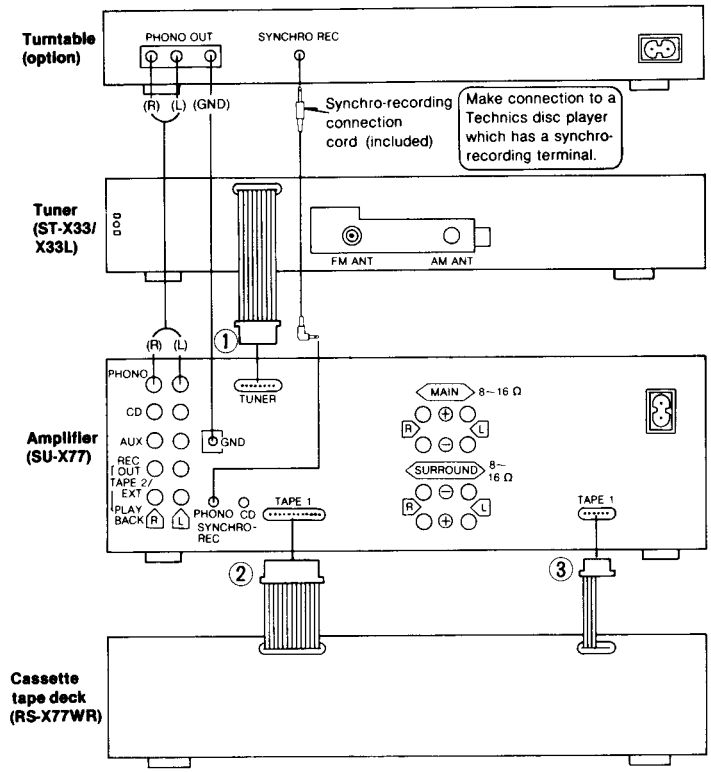
Technics

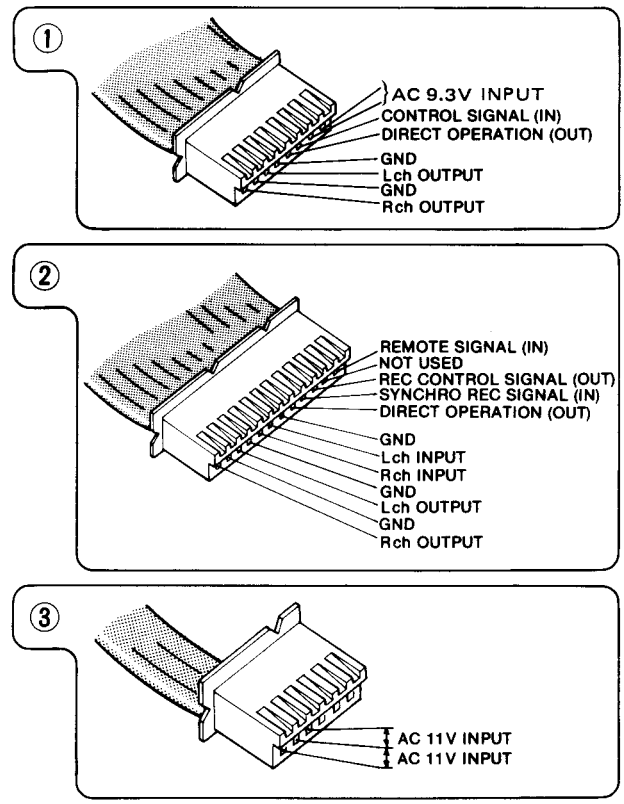
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ HOW TO CONNECTION

Connect the turntable, tuner, amplifier, and cassette deck as shown.
If the connection is wrong, normal operation will not be attained.

* Tuner (ST-X33/X33L) and Cassette deck (RS-X77WR) is not equipped with power supply. So the amplifier shown or power supply fixture is necessary for the repair and check to Tuner, and Cassette deck.





■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlined below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again.

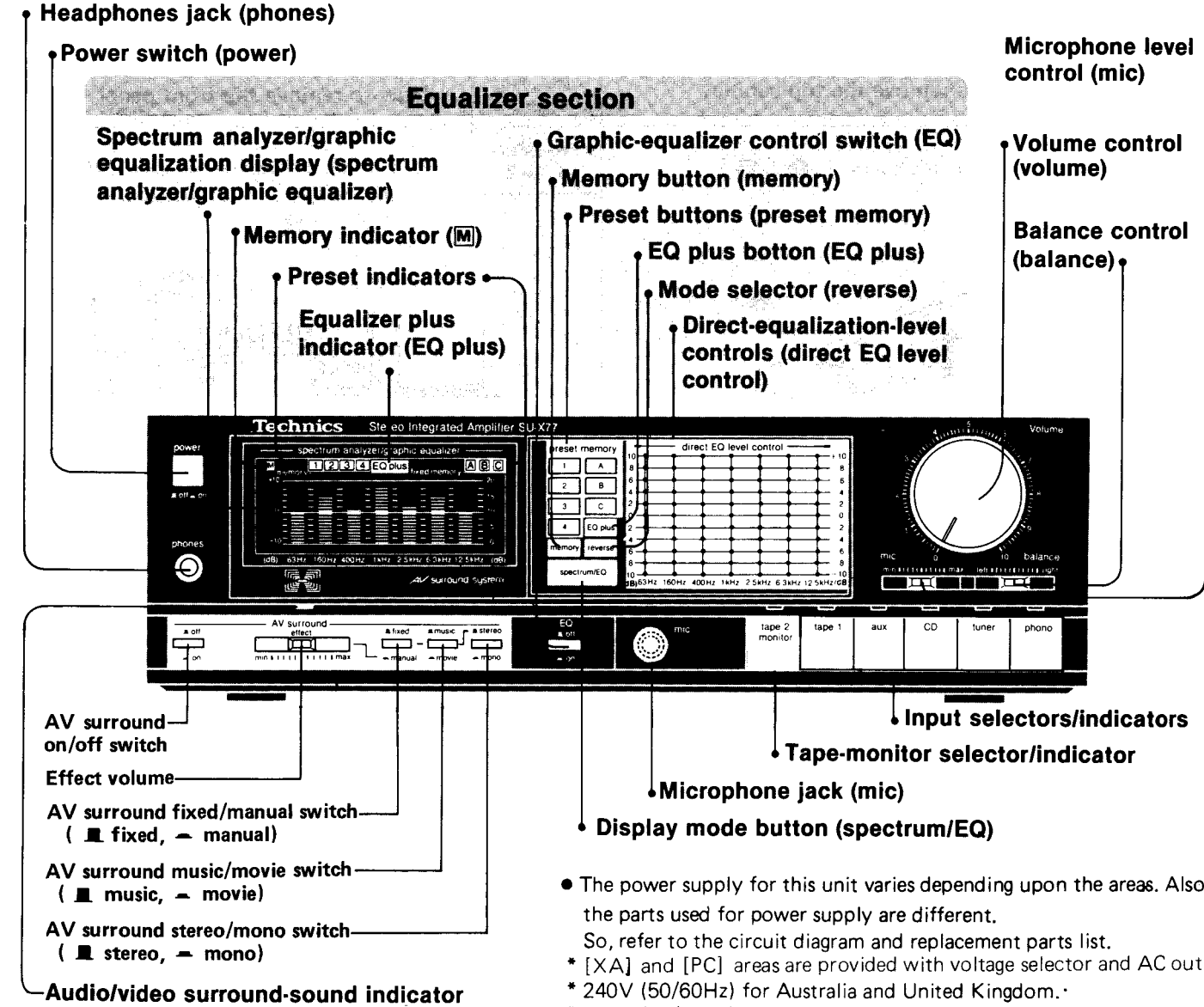
Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR

1. Turn off the power, Discharge both power supply capacitors (C601, C602) through a 10Ω, 5W resistor to groung. Do not short between C601 and C602. It may damage the capacitors.
2. After completion of repair, slowly apply the primary voltage by using a variac to avoid over current. Current consumption at 60Hz/50Hz in no signal mode should by shown below with respect to supply voltage 110V/127V/ 220V/ 240V.

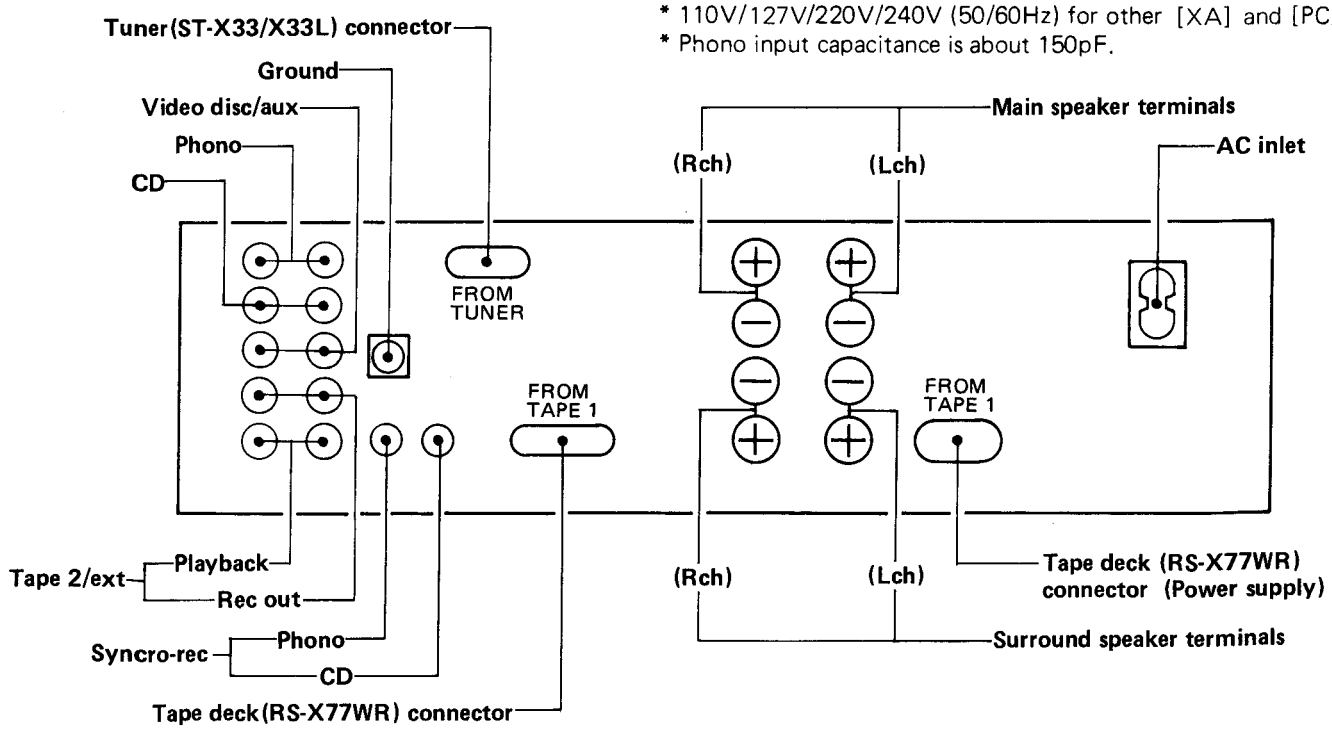
Power supply voltage		AC110V	AC127V	AC220V	AC240V
Consumed current	50/60Hz	150 ~ 450mA	150 ~ 450mA	100 ~ 300mA	100 ~ 300mA

■ LOCATION OF CONTROLS



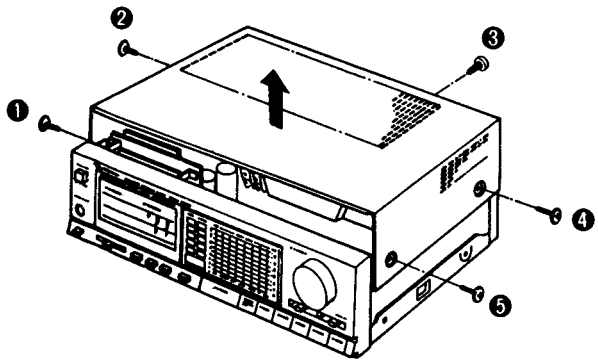
- The power supply for this unit varies depending upon the areas. Also, the parts used for power supply are different. So, refer to the circuit diagram and replacement parts list.

* [XA] and [PC] areas are provided with voltage selector and AC outlets.
* 240V (50/60Hz) for Australia and United Kingdom.
* 220V (50/60Hz) for Continental Europe.
* 110V/127V/220V/240V (50/60Hz) for other [XA] and [PC] areas.
* Phono input capacitance is about 150pF.

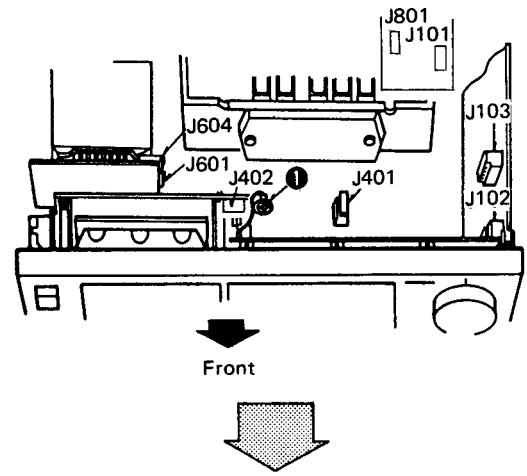


■ DISASSEMBLY INSTRUCTIONS

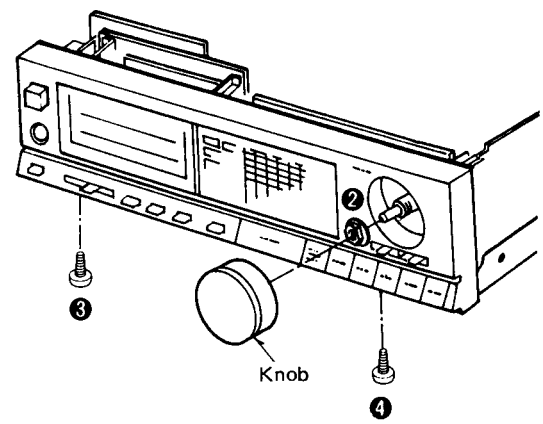
Re. No. 1	How to remove the top cabinet
Procedure 1	• Remove the 5 screws (❶ ~ ❺)



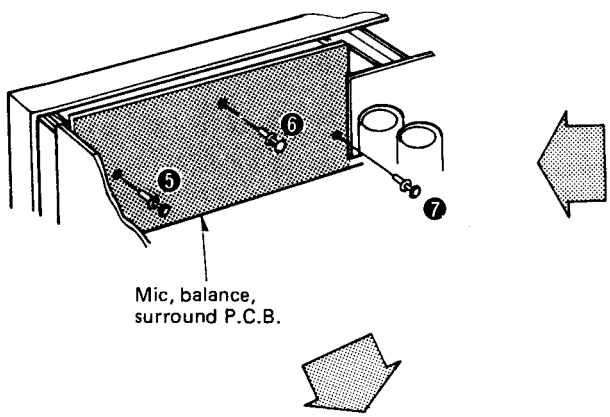
Ref. No. 2	How to remove the front panel
Procedure 1 → 2	1. Remove the 6 connector (J101, 102, 103, 401, 402, 601, 604) and 1 screw (❶).

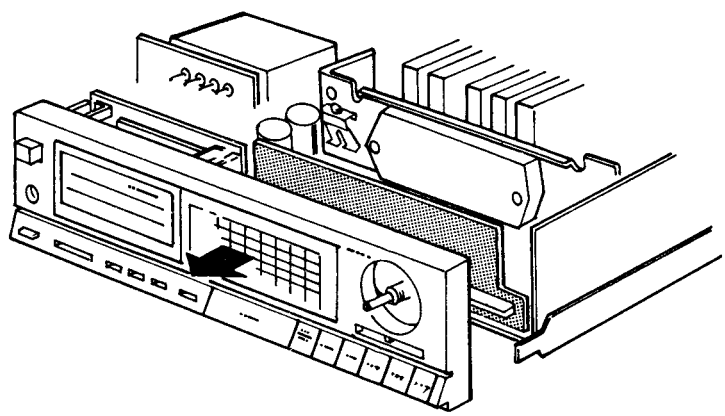


2. Pull out the knob
3. Remove the nut (❷) and 2 screws (❸ , ❹)

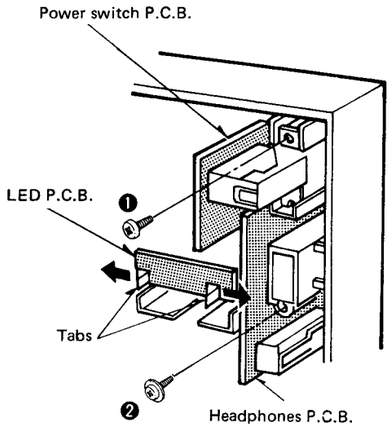


4. Remove the 3 nylone rivet (❺ ~ ❼).

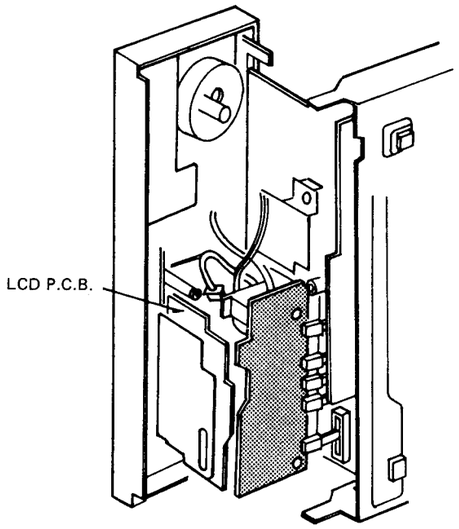




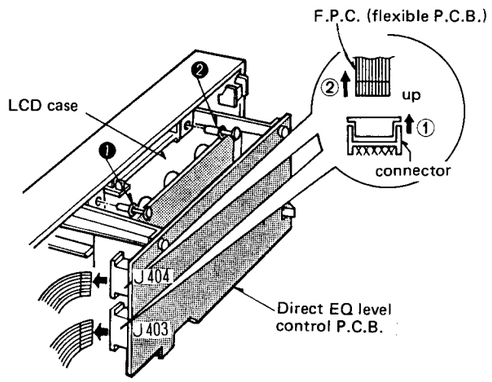
Ref. No. 3	How to remove the power switch P.C.B. and headphones P.C.B.
Procedure 2 →3	1. Remove the 2 screws (❶ , ❷) 2. Remove the 2 tabs. 3. Remove the power switch P.C.B. headphones P.C.B. and LED P.C.B.



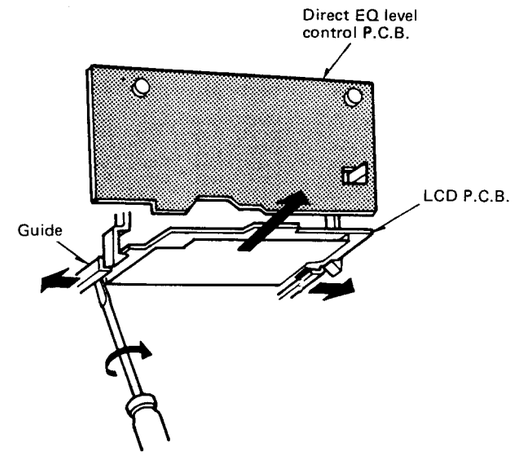
- To check the voltage of the LCD P.C.B., hook up the connectors J101, J102, J103, J401, J402, J601 and J604.



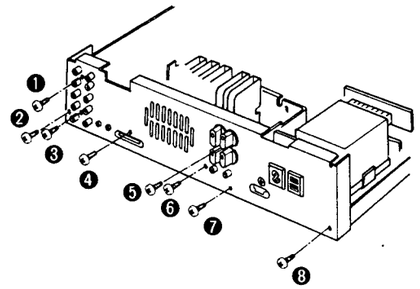
Ref. No. 4	How to remove the LCD P.C.B.
Procedure 2 →3 →4	1. Remove the 2 nylone rivet (❶ , ❷) 2. Remove the 2 connector (J403, 404)

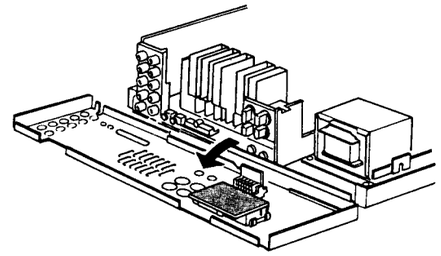


3. Stretch out the guides using a screwdriver or the like, and detach the LCD P.C.B.



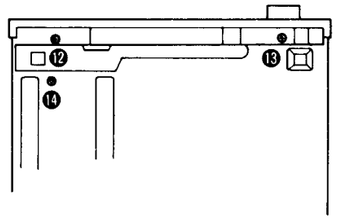
Ref. No. 5	How to remove the power IC.
Procedure 1 →5	1. Remove the 8 screws (❶ ~ ❽).

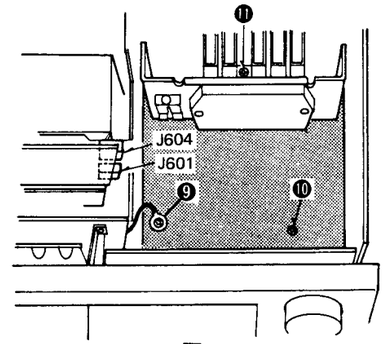




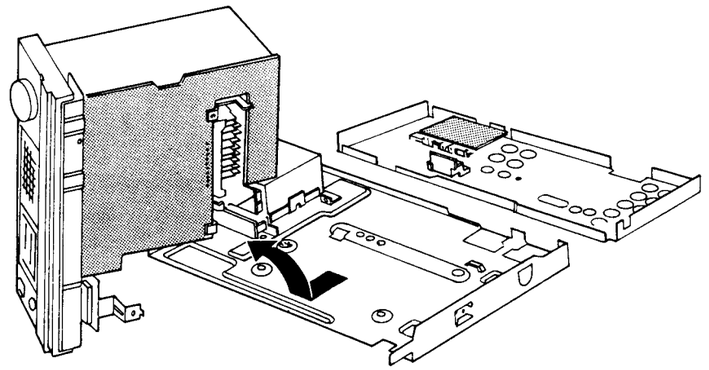
2. Remove the 3 screws (❾ ~ ⓫).
3. Remove the 2 connector (J601, 604).

4. Remove the 3 screws (⓬ ~ ⓮).





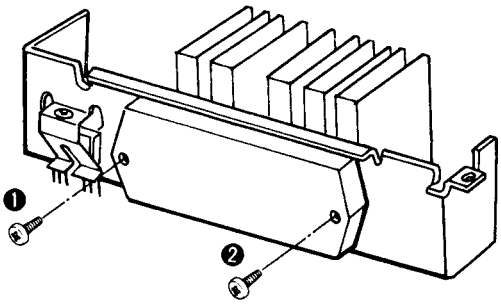
5. Unsolder the power IC.



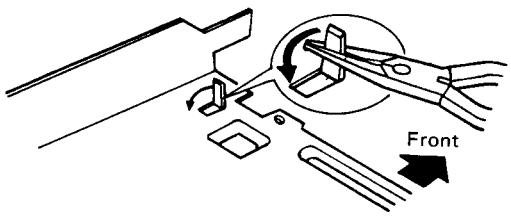
Ref. No. 6
Procedure 6

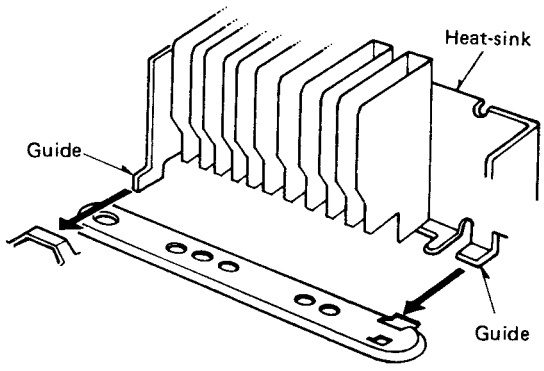
6. Remove the 2 screws (❶ , ❷).

- When mounting the power IC, apply silicon thermal compound (SZZOL15 or equivalent) to the rear of the power IC.



- First fold down the chassis claws, as shown below, and then set up the main P.C.B. in position.



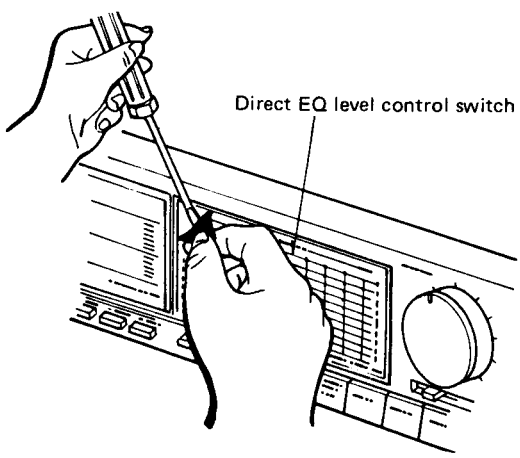


- These claws are for transport purpose. So bending does not affect the performance.

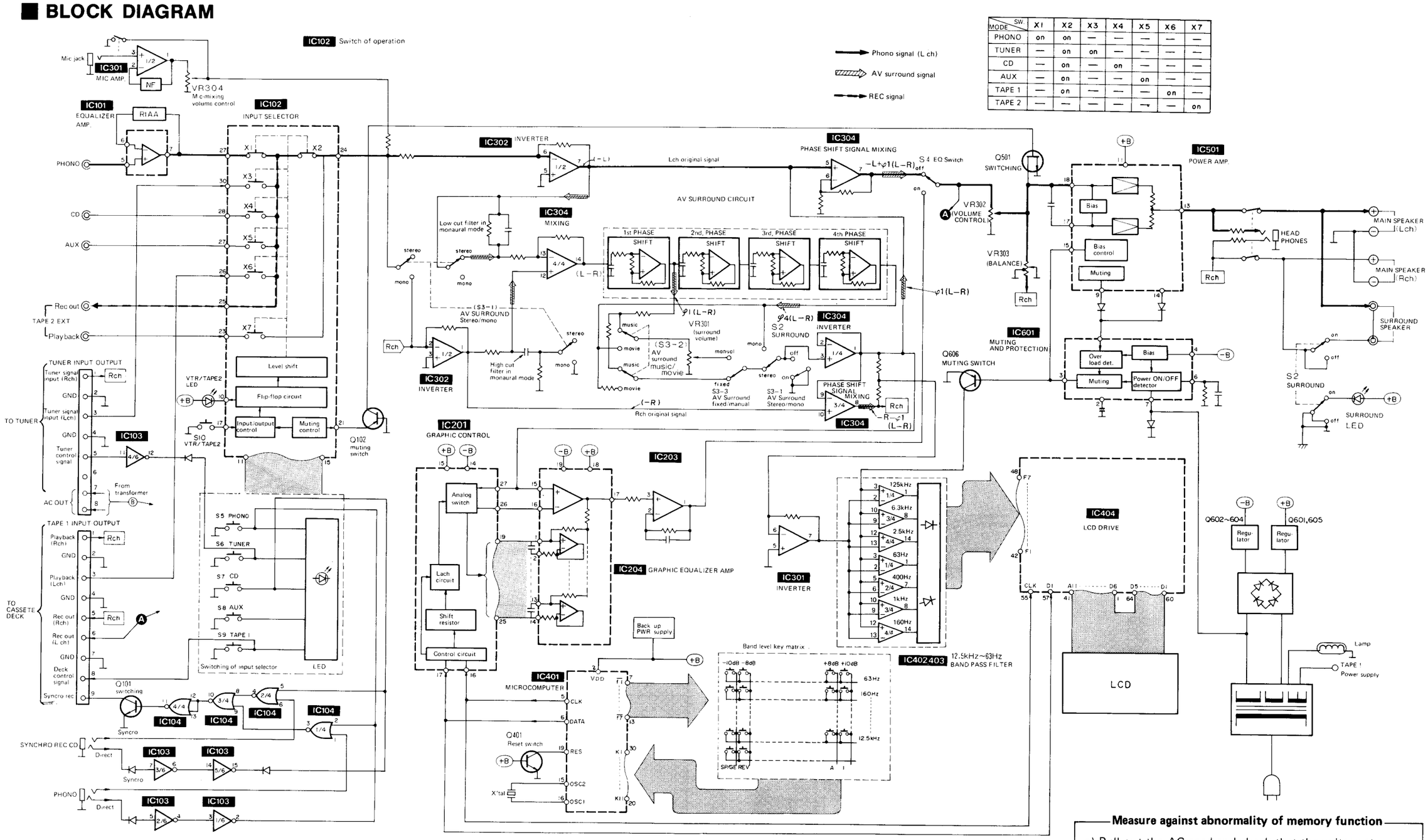
Ref. No. 6	**How to change the direct EQ level control switch**

Procedure 6

You can peel off the switch when its surface gets scratched or dirty. Unstick all the four corners with a screwdriver or the like, as illustrated at right. Do not reuse the old switch.



■ BLOCK DIAGRAM



ADVARSEL:
Lithiumbatteriet er en vigtig komponent (type nr BR2325-1VC. Fremstillet af Matsushita Battery Industrial Co., Ltd.). Husk rigtig polaritet og placering ved udskiftning og når De lodder det nye lithiumbatteri fast.

VARNING:
Detta litiumbatteri (av typ Nr. BR2325-1VC, tillverkad av Matsushita Battery Industrial Co., Ltd.) är en kritisk komponent. Var säker om att iaktta korrekt polaritet och exakt läge av litiumbatteriet under ersättning och lödning av ersättningsbatteriet.

CAUTION:
This lithium battery is a critical component (Type No. BR2325-1VC. Mfrd by Matsushita Battery Industrial Co., Ltd.). Please observe for the proper polarity and the exact location when replacing it and soldering the replacement lithium battery in.

Measure against abnormality of memory function

a) Pull out the AC cord and check that the voltage at VDD terminal (pin No. 2) of IC401 (microcomputer) is +2V or over.
b) If the voltage is less than +2V, check that the battery voltage is +2V or over.
c) If the battery voltage is lower than +2V, replace the battery with new one.

* ● Make sure that the battry voltage is +2V or over before setting the battery.
● Do not short-circuit between the plus and minus sides. Also, set the battery in correct position.

■ REPLACEMENT PARTS LIST

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The parenthesized numbers in the column of description stand for the quantity per set.
5. The unit of resistance is OHM (Ω). K = 1000Ω, M = 1000KΩ
6. The unit of capacitance is MICROFARAD (μF). P = 10^{-6}μF

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	12 : 1/2W	J : ±5%
ERG : Metal Oxide	2A : 2W	K : ±10%
ERC : Solid	S2 : 1/4W	
	25 : 1/4W	
	S1 : 1/2W	

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

Capacitor Type	Voltage		Tolerance
ECE : Electrolytic	0J : 6.3V	66V : 66V	K : ±10%
ECC : Ceramic	1V : 35V	1J : 63V	Z : +80%, −20%
ECK : Ceramic	1C : 16V	KC : 400V AC	M : ±20%
ECF : Semi-conductor	1E : 25V	2A : 100V	P : +100%, −0%
ECQ : Polyester	D : 25V	2H : 500V	
	1H : 50V		

● RESISTORS

Ref.No.	Part No.	Value
R101,102	ERDS2TJ391	390
R103,104	ERDS2TJ224	220K
R105,106	ERDS2TJ563	56K
R107,108	ERDS2TJ680	68
R109,110	ERDS2TJ184	180K
R111,112	ERDS2TJ123	12K
R113,114	ERDS2TJ221	220
R115,116	ERDS2TJ563	56K
R117,118	ERDS2TJ102	1K
R119,120	ERDS2TJ224	220K
R121,122	ERDS2TJ224	220K
R123,124	ERDS2TJ223	22K
R125,126	ERDS2TJ223	22K
R127	ERDS2TJ104	100K
R128,129	ERDS2TJ471	470
R130,131	ERDS2TJ471	470
R132,133	ERDS2TJ471	470
R134A	ERDS2TJ123	12K
R134B	ERDS2TJ273	27K
R135,136	ERDS2TJ222	2.2K
R140	ERDS2TJ332	3.3K
R141	ERDS2TJ103	10K
R201,202	ERDS2TJ102	1K
R203,204	ERDS2TJ224	220K
R205,206	ERDS2TJ224	220K
R207,208	ERDS2TJ123	12K
R209,210	ERDS2TJ273	27K
R211,212	ERDS2TJ562	5.6K
R215,216	ERDS2TJ273	27K
R217,218	ERDS2TJ183	18K
R219,220	ERDS2TJ563	56K
R301,302	ERDS2TJ223	22K
R303,304	ERDS2TJ102	1K
R305,306	ERDS2TJ223	22K
R307,308	ERDS2TJ223	22K
R309,310	ERDS2TJ273	27K
R311,312	ERDS2TJ103	10K
R313,314	ERDS2TJ103	10K
R315,316	ERDS2TJ273	27K
R317,318	ERDS2TJ104	100K
R319,320	ERDS2TJ123	12K
R321,322	ERDS2TJ272	2.7K
R323,324	ERDS2TJ333	33K
R325	ERDS2TJ223	22K
R326,327	ERDS2TJ824	820K
R328	ERDS2TJ393	39K

Ref.No.	Part No.	Value
R329	ERDS2TJ223	22K
R330	ERDS2TJ393	39K
R331,332	ERDS2TJ223	22K
R333,334	ERDS2TJ223	22K
R335,336	ERDS2TJ223	22K
R337,338	ERDS2TJ223	22K
R339,340	ERDS2TJ223	22K
R341,342	ERDS2TJ223	22K
R343,344	ERDS2TJ332	3.3K
R345	ERDS2TJ822	8.2K
R346	ERDS2TJ152	1.5K
R347	ERDS2TJ392	3.9K
R348,349	ERDS2TJ104	100K
R350	ERDS2TJ392	3.9K
R351	ERDS2TJ103	10K
R352	ERDS2TJ101	100
R353	ERDS2TJ473	47K
R354	ERDS2TJ123	12K
R355	ERDS2TJ102	1K
R356	ERDS2TJ821	820
R357	ERDS2TJ154	150K
R358	ERDS2TJ103	10K
R401,402	ERDS2TJ103	10K
R403	ERDS2TJ103	10K
R405	ERDS2TJ392	3.9K
R406	ERDS2TJ124	120K
R407	ERDS2TJ473	47K
R408	ERDS2TJ124	120K
R409	ERDS2TJ392	3.9K
R410	ERDS2TJ473	47K
R411	ERDS2TJ124	120K
R412	ERDS2TJ392	3.9K
R413	ERDS2TJ473	47K
R414	ERDS2TJ392	3.9K
R415	ERDS2TJ124	120K
R416	ERDS2TJ473	47K
R417	ERDS2TJ392	3.9K
R418	ERDS2TJ124	120K
R419	ERDS2TJ473	47K
R420	ERDS2TJ124	120K
R421	ERDS2TJ392	3.9K
R422	ERDS2TJ473	47K
R423	ERDS2TJ392	3.9K
R424	ERDS2TJ124	120K
R425	ERDS2TJ473	47K

Ref.No.	Part No.	Value
R426	ERDS2TJ153	15K
R427	ERDS2TJ221	220
R428 ⚠	ERD25FJ103	10K
R430,431	ERDS2TJ103	10K
R501,502	ERDS2TJ102	1K
R503,504	ERDS2TJ393	39K
R505,506	ERDS2TJ271	270
R507,508	ERDS2TJ393	39K
R509,510	ERDS2TJ472	4.7K
R511,512	ERDS2TJ103	10K
R513,514	ERG1ANJ331	330
R515	ERDS2TJ153	15K
R516 ⚠	ERD25FJ471	470
R517	ERDS2TJ154	150K
R519	ERDS2TJ473	47K
R521,522 ⚠	ERD25FJ100	10
R530	ERDS2TJ331	330
R601 ⚠	ERD25FJ120	12
R602 ⚠	ERD25FJ180	18
R603,604	ERDS2TJ472	4.7K
R605 ⚠	ERD25FJ222	2.2K
R606	ERDS2TJ682	6.8K
R607	ERDS2TJ104	100K
R608	ERDS2TJ822	8.2K
R609	ERDS2TJ154	150K
R610	ERDS2TJ104	100K
R611	ERDS2TJ103	10K
R612	ERDS2TJ824	820K
R613	ERDS2TJ820	82
R614	ERDS2TJ153	15K
R615	ERDS2TJ393	39K
R616,617	ERX1ANJR22	0.22
R618	ERDS2TJ271	270
R619	ERDS2TJ100	10
R620 ⚠	ERDS1FJ391	390
R697,698	ERDS2TJ6R8	6.8
R699	ERDS2TJ6R8	6.8
R701,702[EG]	ERDS2TJ471	470
R703,704[EG]	ERDS2TJ222	2.2K
R705,706[EG]	ERDS2TJ222	2.2K
R707,708[EG]	ERDS2TJ222	2.2K
R709,710[EG]	ERDS2TJ102	1K
R711	ERDS2TJ102	1K
R721	ERDS2TJ102	1K
R722	ERDS2TJ473	47K

● CAPACITORS

Ref.No.	Part No.	Value
C1 ⚠	ECKDKC103PF2	0.01
C101,102	ECEA1HK010	1
C103,104	ECCD1H101K	100P
C105,106	ECQM1H223JZ	0.022
C107,108	ECQM1H682JZ	0.0068
C109,110	ECKD1H102KB	0.001
C111,112	ECEA0JU330	33
C113,114	ECEA1HK3R3	3.3
C115,116	ECKD1H103ZF	0.01
C117	ECEA1CU101	100
C118	ECFTD473KXL	0.047
C119	ECEA1EK4R7	4.7
C120	ECEA1CK100	10
C121,122	ECKD1H103ZF	0.01
C127[EG]	ECQM1H153JZ	0.015
C127[PC]	ECQM1H273JZ	0.027
C127[other]	ECQM1H183JZ	0.018
C128[EG]	ECQM1H153JZ	0.015
C128[PC]	ECQM1H273JZ	0.027
C128[other]	ECQM1H183JZ	0.018
C130	ECKD1H223ZF	0.022
C201,202	ECKD1H103ZF	0.01
C203,204	ECEA1EK3R3	3.3
C205,206	ECEA1EK3R3	3.3
C207,208	ECEA1EK3R3	3.3
C209,210	ECCD1H151K	150P
C211,212	ECEA50ZR68	0.68
C213,214	ECEA1HKR33	0.33
C215,216	ECEA1HKR33	0.33
C217,218	ECEA50ZR15	0.15
C219,220	ECQM1H124JZ	0.12
C221,222	ECFTD563KXL	0.056
C223	ECFTD473KXL	0.047
C224	ECFTD183KXL	0.018
C225	ECFTD223KXL	0.022
C226	ECFTD822KXL	0.0082
C227	ECFTD183KXL	0.018
C228	ECFTD473KXL	0.047
C229	ECFTD822KXL	0.0082
C230	ECFTD223KXL	0.022
C231,232	ECFTD682KXL	0.0068
C233,234	ECFTD332KXL	0.0033
C235,236	ECFTD392KXL	0.0039
C237,238	ECFTD182KXL	0.0018

Ref.No.	Part No.	Value
C239,240	ECCD1H101K	100P
C241,242	ECCD1H101K	100P
C243,244	ECEA1EK3R3	3.3
C245,246	ECKD1H103ZF	0.01
C301,302	ECEA1CU330	33
C303,304	ECEA1CK100	10
C307	ECKD1H681KB	680P
C308	ECEA1EK3R3	3.3
C309,310	ECFTD823KXL	0.082
C311,312	ECFTD183KXL	0.018
C313	ECFTD152KXL	0.0015
C315,316	ECEA1CK100	10
C317	ECFTD472KXL	0.0047
C318	ECEA1CU330	33
C319	ECEA1EK3R3	3.3
C320	ECKD1H332KB	0.0033
C321	ECCD1H101K	100P
C322	ECEA1EK3R3	3.3
C323,324	ECKD1H103ZF	0.01
C331,332	ECKD1H331KB	330P
C399	ECCD1H180K	18P
C401	ECEA0JU101	100P
C402	ECCD1H680K	68P
C403	ECCD1H470K	47P
C405	ECEA1HKR33	0.33
C406	ECEA1HKR22	0.22
C407,408	ECKD1H561KB	560P
C409	ECEA1CK100	10
C410,411	ECFTD122KXL	0.0012
C412	ECEA1CK100	10
C413,414	ECFTD272KXL	0.0027
C415	ECEA1CK100	10
C416,417	ECEA1HK0R1	0.1
C418	ECEA1CK100	10
C419,420	ECFTD183KXL	0.018
C421	ECEA1CK100	10
C422,423	ECFTD473KXL	0.047
C424	ECEA1CK100	10
C425,426	ECFTD682KXL	0.0068
C427	ECEA1CK100	10
C428	ECQM1H273JZ	0.027
C429	ECEA1EK3R3	3.3
C430	ECEA1CK470	47
C440	ECEA1CK100	10
C441	ECKD1H103ZF	0.01

Ref.No.	Part No.	Value
C442	ECKD1H473ZF	0.047
C501,502	ECEA1HK3R3	3.3
C503,504	ECCD1H101K	100P
C505,506	ECKD1H561KB	560P
C507,508	ECEA0JU470	47
C509,510	ECCD1H390K	39P
C511,512	ECEA1HK2R2	2.2
C513	ECEA1HK470	47
C514,515	ECKD1H103ZF	0.01
C516	ECEA1HK0R1	0.1
C517,518	ECKD1H223ZF	0.022
C601,602 ⚠	ECETS45V472U	4700
C603,604 ⚠	FCKD1H103ZF	0.01
C605	ECEA1CU101	100
C606	ECEA1CU100	10
C607,608	ECEA1CK100	10
C609	ECEA1HK2R2	2.2
C610,611	ECKD1H103ZF	0.01
C612	ECEA1EK4R7	4.7
C613	ECEA0JU101	100
C614	ECEA0JU330	33
C615	ECEA1EK3R3	3.3
C616	ECEA1CK330	33
C617 ⚠	ECQE1104KN	0.1
C699	ECKD1H102KB	0.001
C701,702[EG]	ECCD1H180K	18P
C703,704[EG]	ECCD1H151K	150P
C705,706[EG]	ECCD1H101K	100P
C707,708[EG]	ECCD1H101K	100P
C709,710[EG]	ECCD1H101K	100P
C711,712[EG]	ECQM1H472JZ	0.0047
C713[EG]	ECKD1H103ZF	0.01
C714[EG]	ECKD1H223ZF	0.022
C720	ECQM1H224JZ	0.22
C721	ECKD1H102KB	0.001
C722 ⚠	ECQE1104KN	0.1
C798,799[EG]	ECKD1H103ZF	0.01

■ FUNCTION OF TERMINAL

● IC102 (LC7818) Input selector

Pin No.	Mark	Description
1,30	A1, A2	Audio (tuner) signal input. "L" status when the tuner is turned on.
2,29	B1, B2	Audio (player) signal input. "L" status when the player is turned on.
3,28	C1, C2	Audio (CD) signal input. "L" status when the compact disc player is turned on.
4,27	D1, D2	Audio (VHD) signal input. "L" status when the video disc player is turned on.
5,26	E1, E2	Audio (tape 1, playback) signal input. "L" status when the tape 1 is turned on.
6,25	SOURCE1 SOURCE2	Audio (VTR, rec out) signal output.
7,24	OUT1 OUT2	Audio signal output.
8,23	TM1 TM2	Audio (VTR, playback) signal input. "L" status when the video deck/tape 2 is turned on.
9	V_{EE}	Negative power supply.
10	$\overline{TMOUT}$	Input switching LED driver output.
11	$\overline{ACLT}$	Analog switch (tuner) control input/output.
12	$\overline{BCLT}$	Analog switch (player) control input/output.
13	$\overline{CCLT}$	Analog switch (CD) control input/output.
14	$\overline{DCLT}$	Analog switch (video disc) control input/output.
15	$\overline{ECLT}$	Analog switch (tape 1) control input/output.
16	V_{SS}	Ground.
17	$\overline{TMCLT}$	Video deck/tape 2, switch input.
18	$\overline{JNIT}$	———
19	$\overline{MIN}$	———
20	CR	Clock oscillation input/output.
21	MUTE	Muting signal output.
22	V_{DD}	Positive power supply (back-up power supply from tuner)

• IC401 (LC6523C) Input selector control

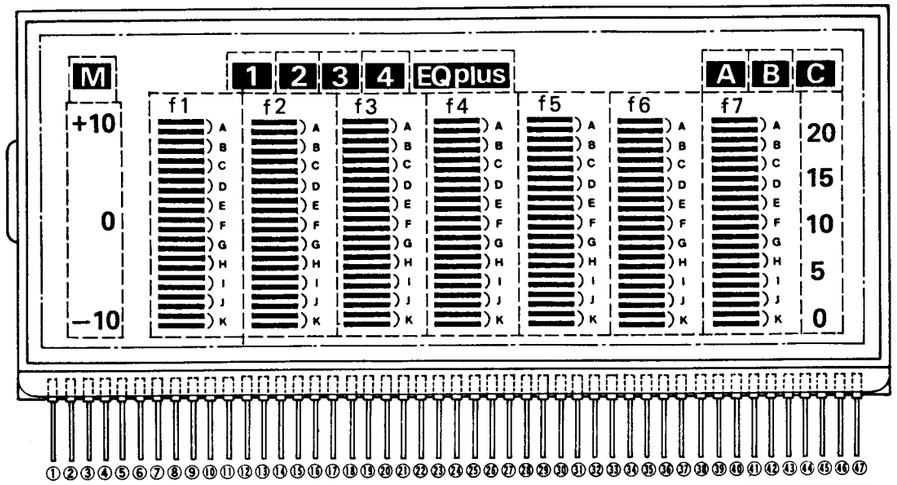
Pin No.	Mark	Description
1	LC	Not used for this unit.
2	V_{DD}	Power supply (back-up power supply from tuner).
3	MUT	Muting signal output.
4	DATA	Data signal input from microcomputer (IC404).
5	CLK	Clock signal input from microcomputer (IC404).
6	$\overline{INT}$	Interrupt input.
7 ≀ 13	f_1 ≀ f_7	Key scan outputs corresponding to frequencies (63Hz ~ 12.5kHz).
14	KET	Key scan output for accessory (1.2-spectrum/EQ) key.
15, 16	OSC1 OSC2	External CR oscillator input/output.
17	TEST	Ground.
18	V_{SS}	Ground.
19	$\overline{RES}$	Reset signal input; for resetting at microcomputer start.
20 ≀ 30	K11 ≀ K1	Key scan inputs corresponding to dB levels (−10dB ~ +10dB).

• IC201 (LC7522) Graphic equalizer control

Pin No.	Mark	Description
1	V_{DD}	Power supply (for audio signal).
2 (27)	IN1	Audio signal input.
3 (26)	IN2	Audio signal input.
4 (25) ≀ 10 (19)	f_7 ≀ f_1	Band filter connections.
11 (12)	TEST2 TEST1	Not used for this unit (for IC test).
13	S	———
14	V_{EE}	Power supply (for audio signal).
15	V_{CC}	Power supply.
16	D1	Data signal input from microcomputer (IC404).
17	CLK	Clock signal input from microcomputer (IC404).
18	V_{SS}	Ground.

Numbers in parentheses are pin numbers for channel L.

■ NAME OF LCD (Liquid Crystal Display) TERMINALS

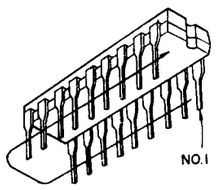


Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Terminal name	COM1	f1A	f1B	f1C	f1D	f1E	f1F	f1G	f1H	f1I	f1J	f1K	f3A	f3B	f3C	f3D
	—	f2A	f2B	f2C	f2D	f2E	f2F	f2G	f2H	f2I	f2J	f2K	f4A	f4B	f4C	f4D

Pin No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Terminal name	f3E	f3F	f3G	f3H	f3I	f3J	f3K	f5A	f5B	f5C	f5D	f5E	f5F	f5G	f5H	f5I
	f4E	f4F	f4G	f4H	f4I	f4J	f4K	f6A	f6B	f6C	f6D	f6E	f6F	f6G	f6H	f6I

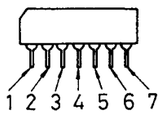
Pin No.	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
Terminal name	f5J	f5K	f7A	f7B	f7C	f7D	f7E	f7F	f7G	f7H	f7I	f7J	f7K	—	—
	f6J	f6K	+10.0.-10	—	M	1	2	3	4	EQplus	A	B	C	0.5.10.15.20	COM2

• Terminal guide of transistors, diodes and IC's

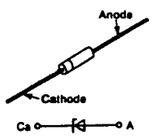


M5218P	8Pin
M5220P	8Pin
M5229P	20Pin
AN6552	8Pin
AN6553F	8Pin
AN6554F	14Pin
MN4001B	14Pin
MN4049B	16Pin
LC6523C	30Pin
LC7522	28Pin
LC7560	64Pin
LC7818	30Pin

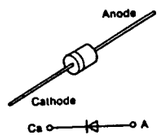
AN7072N



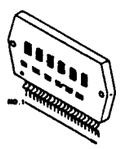
MA4030, MA4062
MA4075, MA4130M



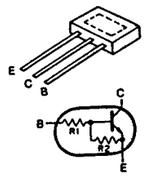
MA165,
SVDS2V20



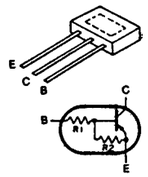
SVI3001



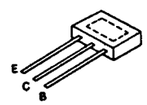
UN4211, UN4214



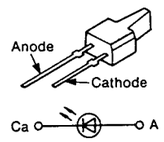
UN4111



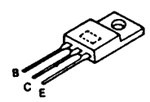
LN224WP
LN424WP



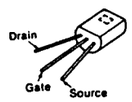
2SA1309
2SC3311



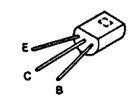
2SB941
2SD1265



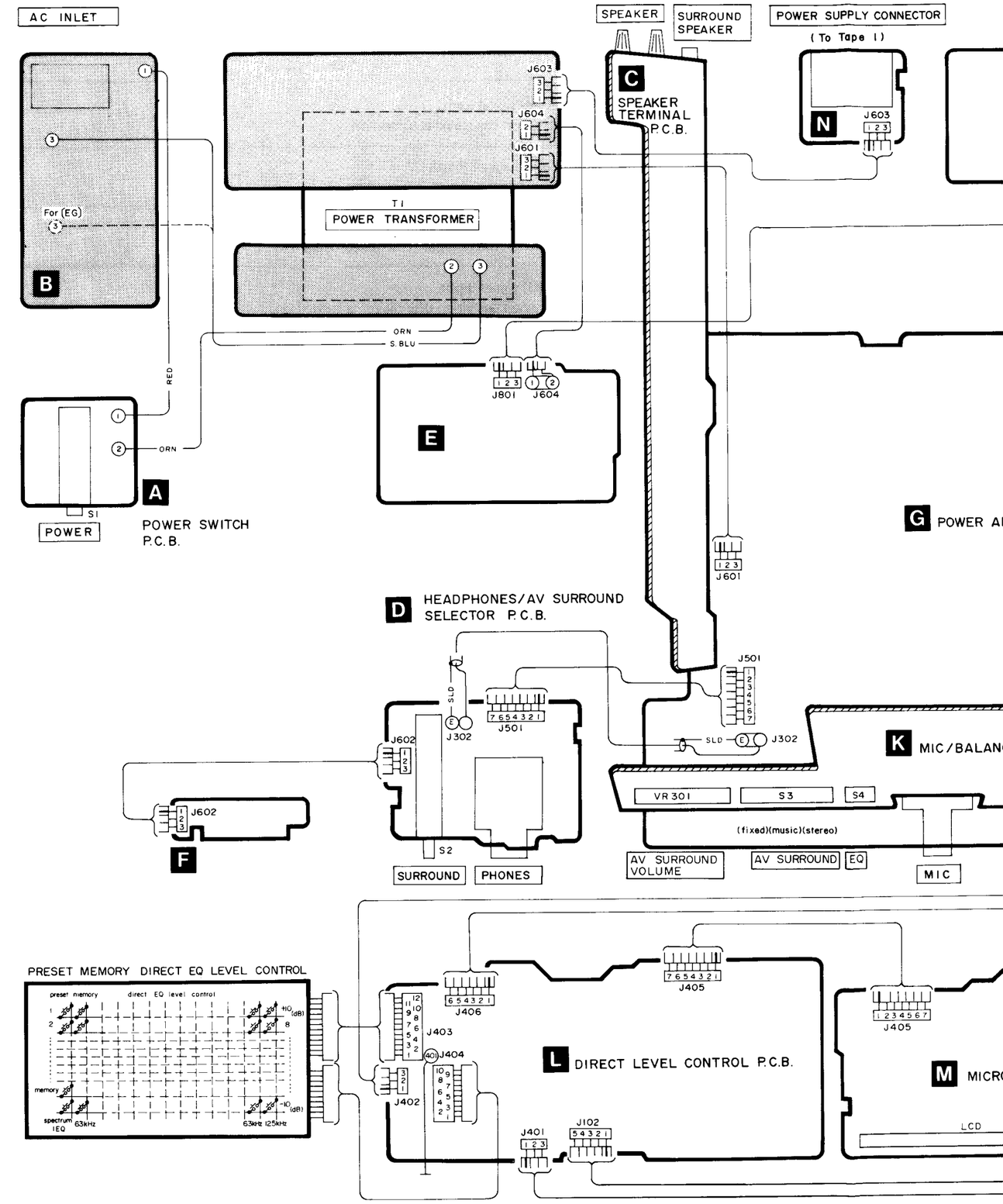
2SK301



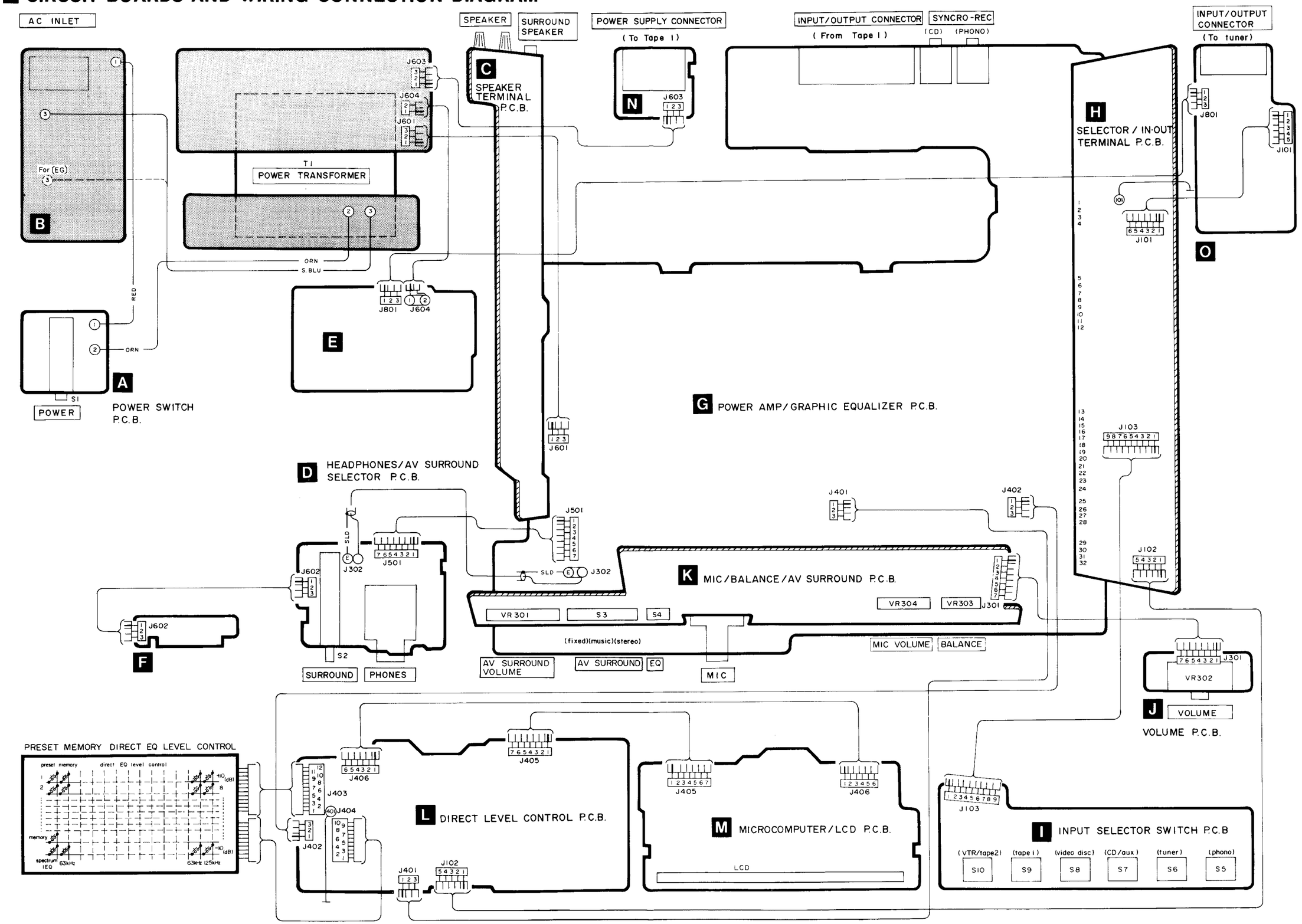
2SC1384

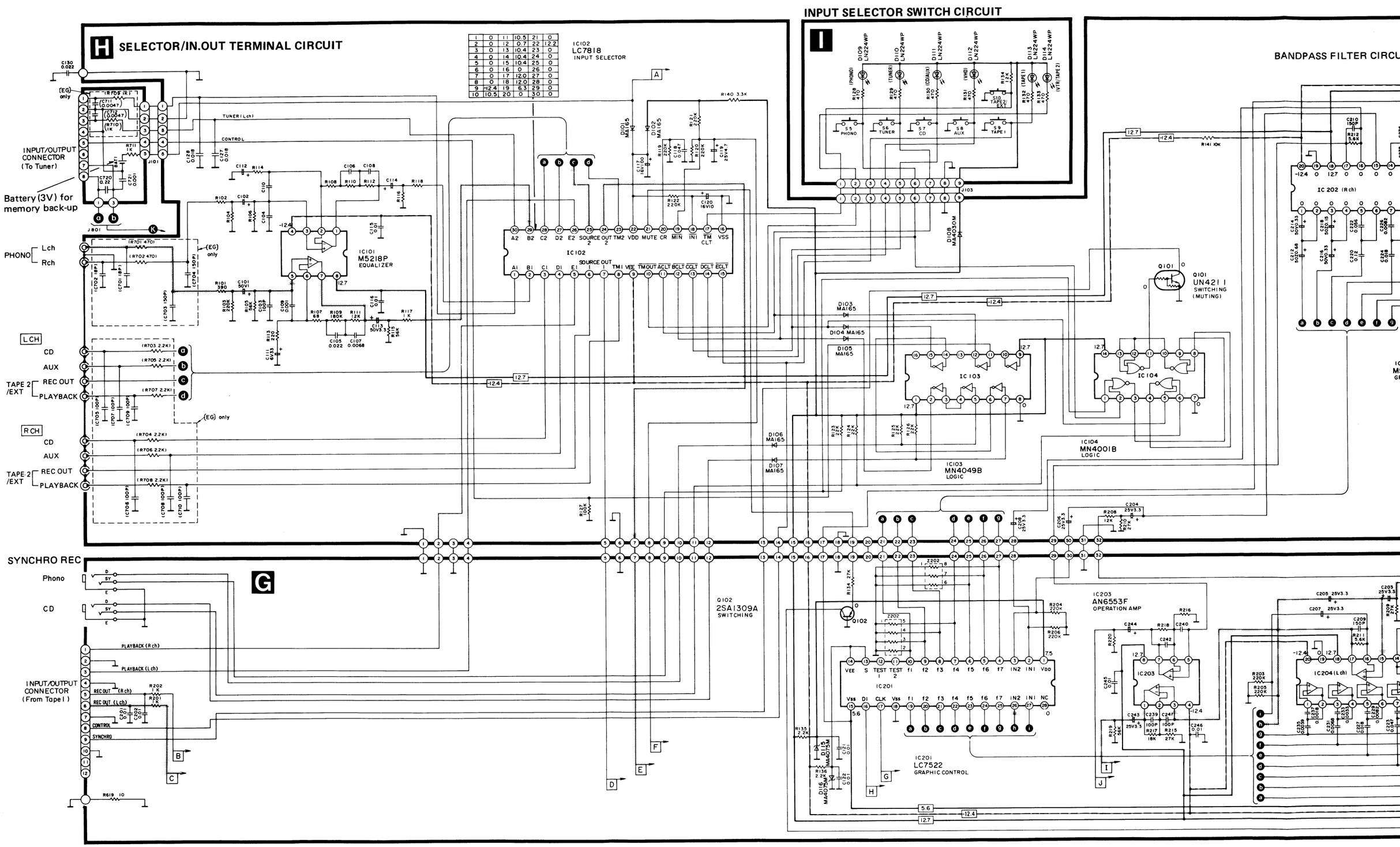


■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM



■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM




H SELECTOR/IN.OUT TERMINAL CIRCUIT
INPUT SELECTOR SWITCH CIRCUIT
I
BANDPASS FILTER CIRCU
IC102 LC7818 INPUT SELECTOR
IC101 M5218P EQUALIZER
IC102 SOURCE OUT 2
IC103 MN4049B LOGIC
IC104 MN4001B LOGIC
IC201 LC7522 GRAPHIC CONTROL
IC202 (Rch)
IC203 AN6553F OPERATION AMP
IC204 (Lch)
Q101 UN4211 SWITCHING (MUTING)
Q102 2SA1309A SWITCHING
INPUT/OUTPUT CONNECTOR (To Tuner)
Battery (3V) for memory back-up
PHONO Lch Rch
LCH CD AUX TAPE 2 /EXT REC OUT PLAYBACK
RCH CD AUX TAPE 2 /EXT REC OUT PLAYBACK
SYNCHRO REC Phono CD
INPUT/OUTPUT CONNECTOR (From Tape I)
TUNER (Lch)
CONTROL
PLAYBACK (Rch)
PLAYBACK (Lch)
REC OUT (Rch)
REC OUT (Lch)
SYNCHRO
S5 PHONO
S6 TUNER
S7 CD
S8 AUX
S9 TAPE 1
S10 TAPE 2/ EXT
(PHONO)
(TUNER)
(CD/AUX)
(VHD)
(TAPE 1)
(VTR/TAPE 2)

BANDPASS FILTER CIRCUIT

IC202,204
M5229P
GRAPHIC EQUALIZER

K MIC/BALANCE/AV SURROUND CIRCUIT

IC301
AN6552
MIC AMP.&
MIXING AMP

IC302
AN6553F
BUFFER MIC MIX

IC303,304
AN6554F
PHASE SHIFT

High cut filter in monaural mode

Low cut filter in monaural mode

Mic signal

Microphones level control

AV surround effect level control

Graphic equalizer signal

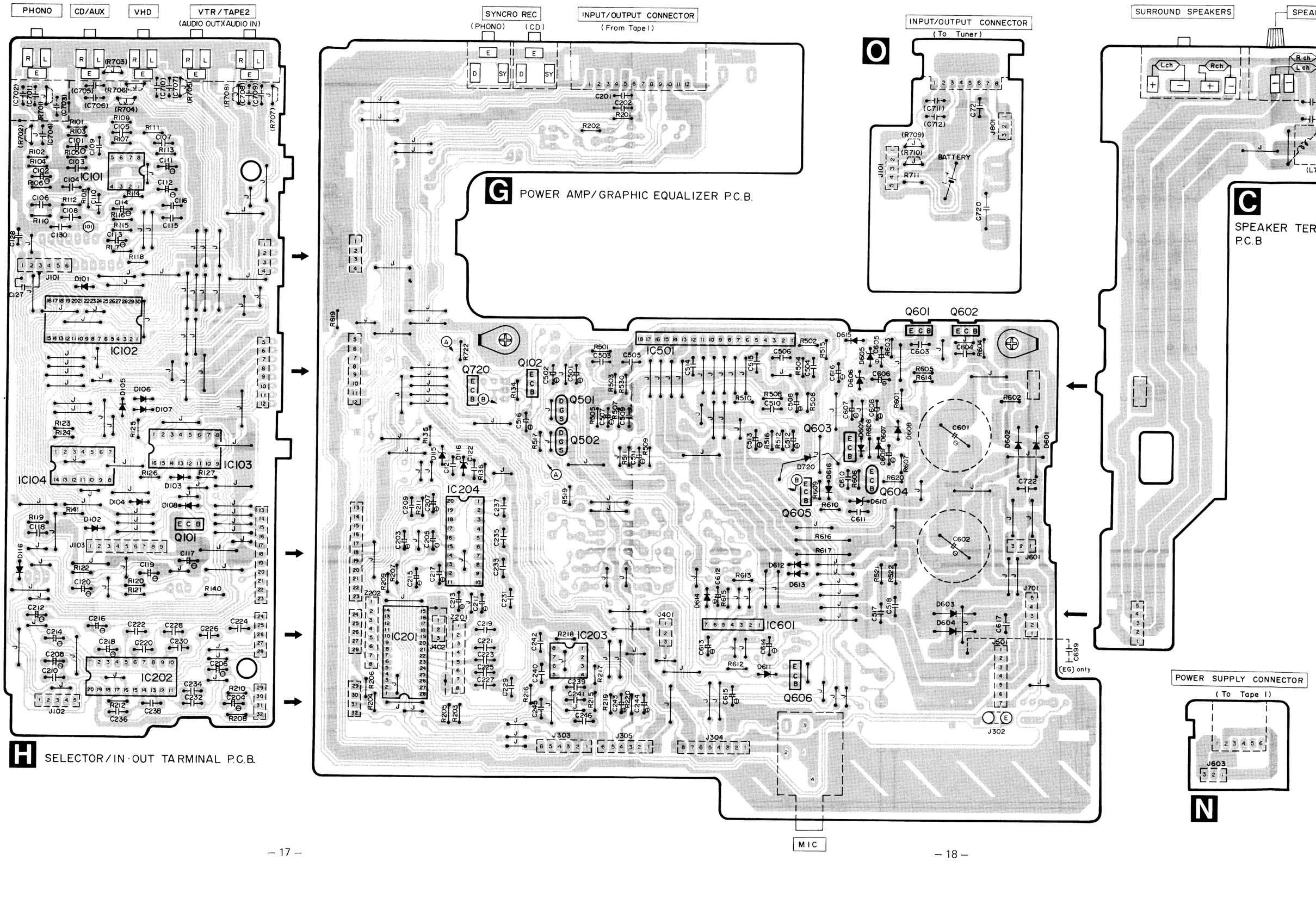
Balance control

Volume control

VOLUME CIRCUIT

Tape 1 rec signal

■ PRINTED CIRCUIT BOARDS



SURROUND SPEAKERS

SPEAKERS

Lch Rch R ch L ch

(L703)

C SPEAKER TERMINAL P.C.B

F2 125V 2A

F3 125V 2A

J603

J604

J601

T1 POWER TRANSFORMER

F

J602

D617

(AV SURROUND IND)

AC INLET

B

T1A

F1

(L703)

I INPUT SELECTOR SWITCH P.C.B.

J103

D109 D110 D111 D112 D113 D114

R134

R128 R129 R130 R131 R132 R133

S5 S6 S7 S8 S9 S10

(phono) (tuner) (CD/aux) (video disc) (tape 1) (VTR/tape 2)

M MICROCOMPUTER/LCD P.C.B.

J406 J405

IC404

LCD

L DIRECT LEVEL CONTROL P.C.B.

J405 J406

Q401 IC401

IC403 IC402

J403 J404 J402 J401 J102

D HEADPHONES/AV SURROUND SELECTOR P.C.B.

J302 J501 J602

R514 R513 R618

on off

(S2)

PHONES

SURROUND

K MIC/BALANCE/AV SURROUND P.C.B

IC302 IC304 IC303 IC301

VR303 VR304

J303 J305 J304

(VR303) (VR304)

BALANCE

MIC VOLUME

E

J604 J801

PL603 PL602 PL601

R697 R698 R699

A POWER SWITCH P.C.B.

C1

(S1)

POWER

J VOLUME P.C.B

J301

VR302-2

VR302-1

(VR302)

VOLUME

(S4)

EQ

(S3-1) (S3-2) (S3-3)

(stereo) (music) (fixed)

AV SURROUND

(VR301)

AV SURROUND VOLUME

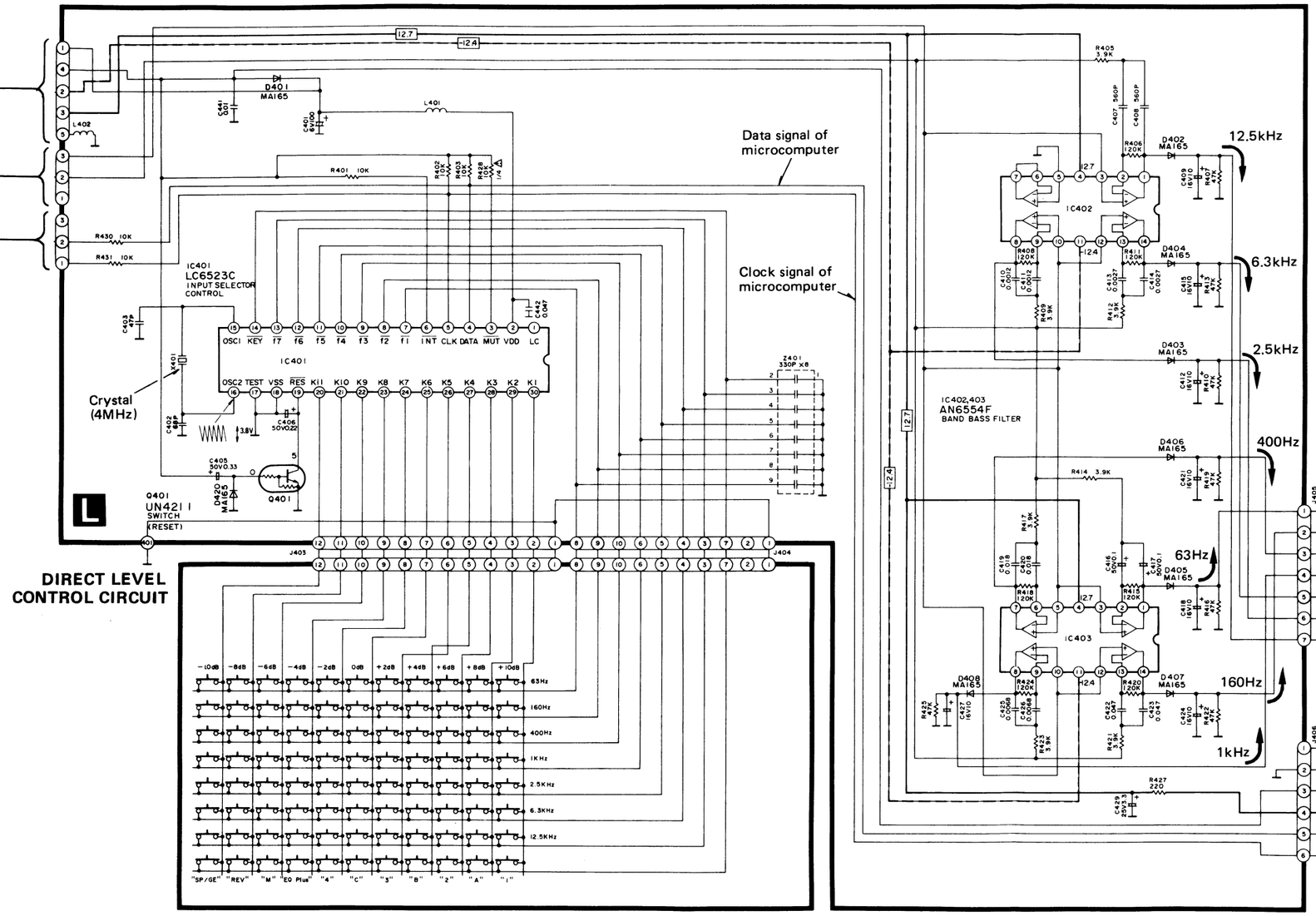
POWER SUPPLY CONNECTOR

(To Tape 1)

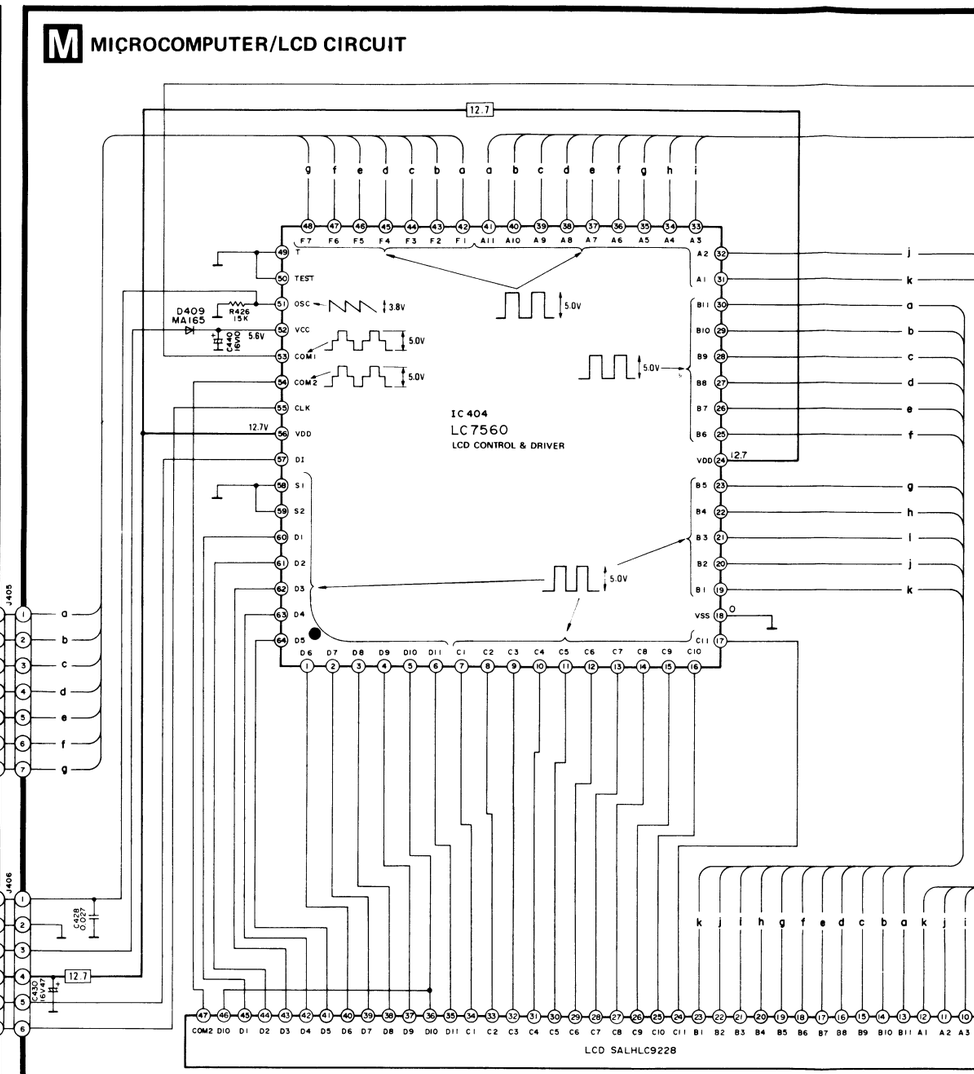
J603

N

L DIRECT LEVEL CONTROL CIRCUIT



M MICROCOMPUTER/LCD CIRCUIT


12.7
g f e d c b a a b c d e f g h i
D409 MA165
R426 15K
C440 16V0
5.6V
IC404
LC7560
LCD CONTROL & DRIVER
F7 F6 F5 F4 F3 F2 F1 A11 A10 A9 A8 A7 A6 A5 A4 A3
T
TEST
OSC
VCC
COM1
COM2
CLK
VDD
DI
S1
S2
D1
D2
D3
D4
D5
3.8V
5.0V
A2 A1 B11 B10 B9 B8 B7 B6 B5 B4 B3 B2 B1 VSS C11
D6 D7 D8 D9 D10 D11 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10
COM2 D10 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 C1 C2 C3 C4 C5 C6 C7 C8 C9 C10 C11 B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 A1 A2 A3 A4
j k a b c d e f g h i j k
LCD SALHLC9228

*** Caution!**
IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
* Cover the parts boxes made of plastics with aluminum foil.
* Ground the soldering iron.
* Put a conductive mat on the work table.
* Do not touch the legs of IC or LSI with the fingers directly.

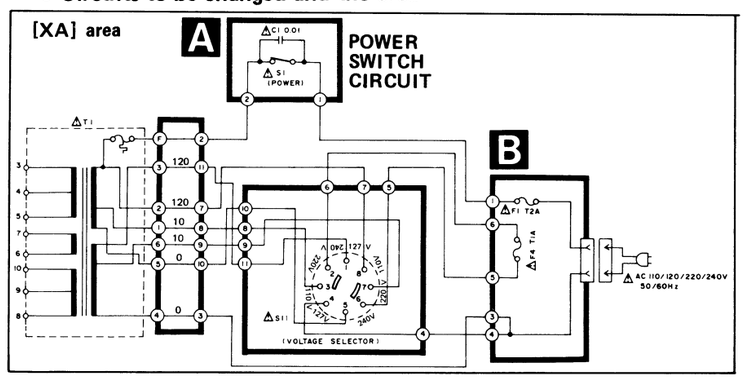
■ SCHEMATIC DIAGRAM

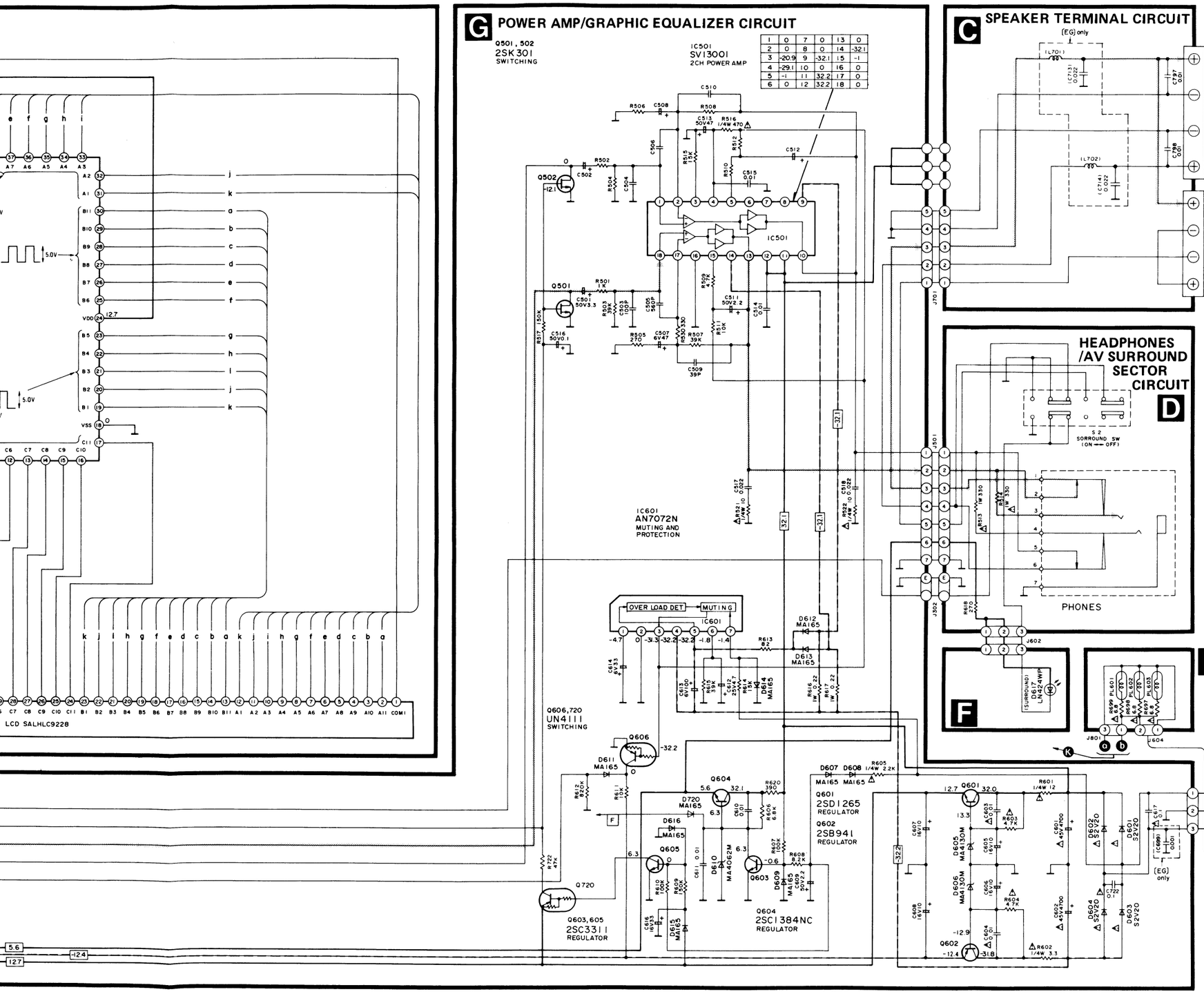
(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. **S1** : Power switch in **"on"** position.
2. **S2** : AV surround switch in **"off"** position. (■ off, ▂ on)
3. **S3-1** : AV surround selector switch in **"stereo"** position. (■ stereo, ▂ mono)
4. **S3-2** : AV surround selector switch in **"music"** position. (■ music, ▂ movie)
5. **S3-3** : AV surround selector switch in **"fixed"** position. (■ fixed, ▂ manual)
6. **S4** : Graphic euualizer switch in **"off"** position. (■ off, ▂ on)
7. **S5 ~ S10** : Input selector in **"phono"** position.
   S5 : phono, S6 : Tuner, S7 : CD, S8 : AUX, S9 : Tape1, S10 : Tape2/EXT
8. **S11 (For[XA]areaonly)** : Voltage adjust switch in **"220V"** position.
   (127V ↔ 110V ↔ 220V ↔ 240V)
9. Signal lines (Lch) — Positive (+B) voltage lines
   Graphic equalizer signal — Negative (−B) voltage lines
10. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending in the internal impedance of the DC circuit tester.
11. Important safety notice:
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components use only manufacturer's specified parts.

• Circuits to be changed and the area





■ REPLACEMENT PARTS LIST (Electric, cabinet & chassis parts)

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. The parenthesized numbers in the column of description stand for the quantity per set.

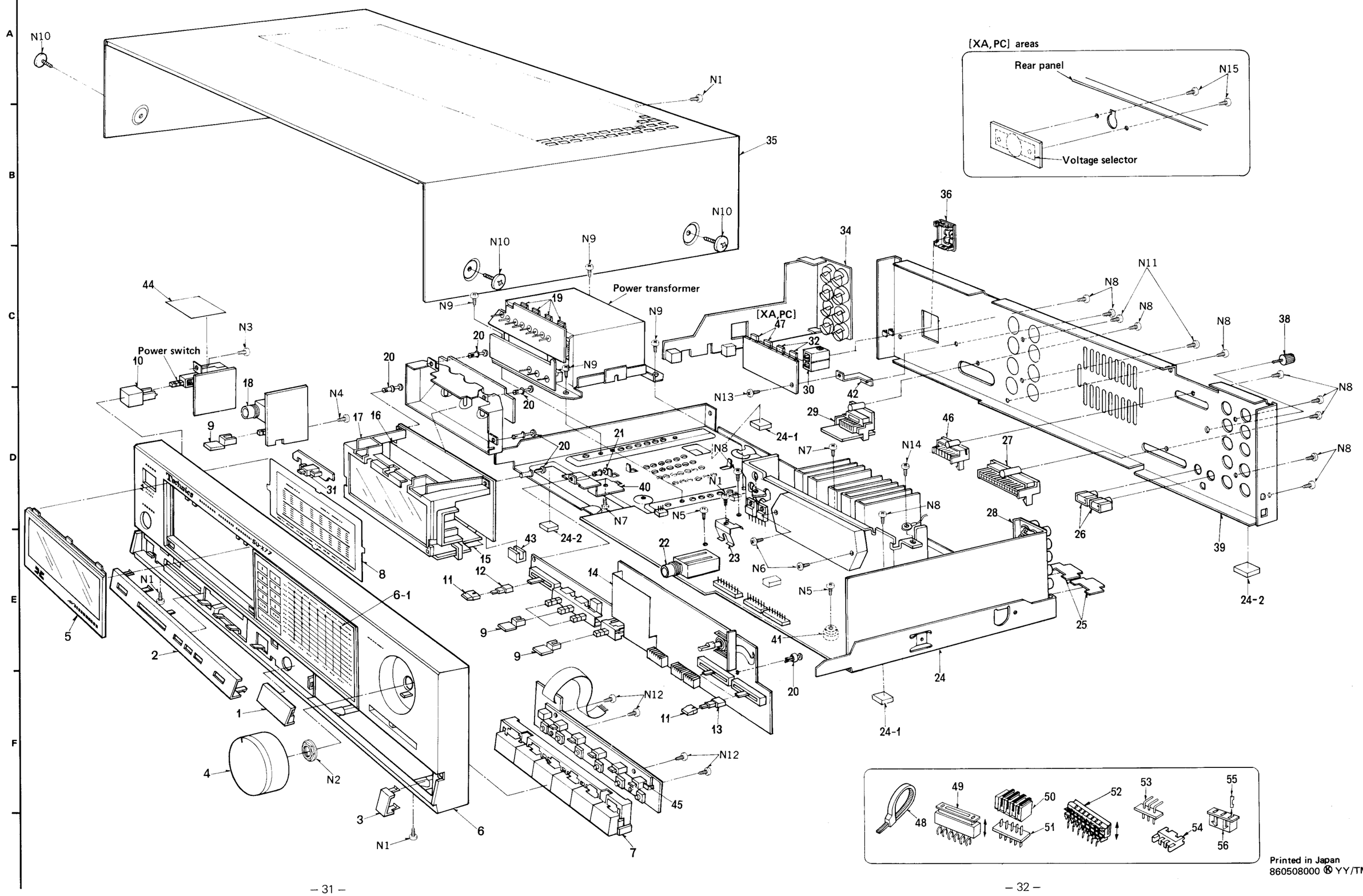
Ref.No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101 [EG]	M5220P	IC
IC101 [other]	M5218P	IC
IC102	LC7818	IC
IC103	MN4049B	IC
IC104	MN4001B	IC
IC201	LC7522	IC
IC202, 204	M5229P	IC
IC203	AN6553F	IC
IC301	AN6552	IC
IC302	AN6553F	IC
IC303,304,402, 403	AN6554F	IC
IC401	LC6523C-752	IC
IC404	LC7560	IC
IC501	SVI3001	IC
IC601	AN7072N	IC
TRANSISTORS		
Q101	UN4211	TR
Q102	2SA1309Q	TR
Q401	UN4214	TR
Q501, 502	2SK301-QRS	TR
Q601	2SD1265-0	TR
Q602	2SB941-P	TR
Q603, 605	2SC3311-Q	TR
Q604	2SC1384NC-R	TR
Q606, 720	UN4111	TR
DIODES		
D101~107,116, 401~409, 420, 607~609, 611~616, 720,	MA165	Diode
D108	MA4030M	Diode
D109~113	LN224WP	LED
D114, 617	LN424WP	LED
D115, 116	MA4075M	Diode
D601~604	SVDS2V20	Diode
D605, 606	MA4130M	Diode
D610	MA4062M	Diode
COILS		
L401	ELEPT2R2MA	Coil
L402, 403	ELEPT1R2MA	Coil
L701, 702 [EG]	SLQY07G-40	Coil
L703 [EG]	SLQZ650MH49	Coil
TRANSFORMERS		
T1 [EK,XL] ⚠	SLT5M482-W	Power
T1 [XA,PC] ⚠	SLT5M483-W	Power
T1 [other] ⚠	SLT5M481-W	Power

Ref.No.	Part No.	Description
CRYSTAL		
X401	SVFCSA400MG	4MHz
VARIABLE RESISTORS		
VR301	EWC00710B53S	AV Surround, 5KΩ (B)
VR302	EWCXUAF20B15	Volume, 100KΩ (B)
VR303	EVG00310G15S	Balance, 100KΩ (G)
VR304	EVG00110B53S	Mic. 5KΩ (B)
LAMPS		
PL601~603	XAMS20Q8	Lamp
FUSES		
F1 [EK] ⚠	XBA2C10TB0	250V, T1A
F1 [XA,PC] ⚠	XBA2C20TR0	250V, T2A
F1 [other] ⚠	XBA2C10TR0	250V, T1A
F2,3 [EK] ⚠	XBA2C20TB0	250V, T2A
F2,3 [other] ⚠	XBA2C20TR0	250V, T2A
F4 [XA,PC] ⚠	XBA2C10TR0	250V, T1A
COMPONENT COMBINATIONS		
Z201,202	EXBP87824M	Component Combination
Z401	EXFP8331MW	Component Combination
LCD		
LCD1	SALHLC9228-2	LCD
SWITCHES		
S1 ⚠	SSH1071	Power
S2	SSH1204-1	Surround
S3	SSH3694-1	AV Surround
S4	SSH1198	Equalizer
S5~10	SSG13	Input Selector
S11 [XA,PC] ⚠	ESE37263	Voltage Selector
BATTERY		
BAT1	BR2325-1VC	Lithium Battery

Ref.No.	Part No.	Descripton
CABINET AND CHASSIS		
1	SGX7796-1A	Mic Jack Cover (1)
2	SGX7789-1A	Ornament A (1)
3	SGX7790-2	Ornament B (1)
4	SBN1213	Knob, Volume (1)
5	SGU480B	Transparent Plate (1)
6	SGYUX77-KE	Front Panel Ass'y (1)
7	SBCUX77-KE	Button, Input Selector (1)
8	SDU287-1B	Scale Plate (1)
9	SBC767-2	Button (5)
10	SBC807-5	Button, Power Switch (1)
11	SBD63-4	Knob, Slide (3)
12	SHR9783	Connection Rod (1)
13	SHR9782	Connection Rod (2)
14	SMC1211-1	Shield Cover (1)
15	SMC1212	Shield Cover (1)
16	SDU282B	LCD Filter (1)
17	SHR9781-1	LCD Holder (1)
18	SJJ63F	Headphone Jack (1)
19	SJT388	Fuse Holder (4)
20	SHR415	Nylon Pin (7)
21	SHR9112	Nylon Pin (1)
22	SJJ63D	Mic Jack (1)
23	SUS755	Spring, Transistor (1)
24	SKUUX77-KE	Bottom Board Ass'y (1)
[24-1	SKL298-1	Foot (2)
24-2	SKL296	Foot (1)
25	SUV538	Spacer (2)
26	SJJ130-1	Jack (2)
27	SJS52	Socket, 12 Pin (1)
28	SJF3062-2N	Input Terminal (1)
29	SJS604	Socket, 6 Pin (1)
30[XL] ⚠	SJS9234B	AC Inlet (1)
30[other] ⚠	SJS9231B	AC Inlet (1)
31	LN012280P	LED Ass'y (1)
32	SJT388	Fuse Holder (2)
34	SJF4818	Speaker Terminal (1)
35	SKCUX77-KE	Cabinet (1)
37[XL]	SJS9234A	AC Inlet Cover (1)
37[other]	SJS9231A	AC Inlet Cover (1)
38	SNE2123	Ground Terminal (1)
39[EK]	SGPUX77-KK	Rear Panel (1)
39[EG]	SGPUX77-KG	Rear Panel (1)
39[XL]	SGPUX77-KL	Rear Panel (1)
39[XA,PC]	SGPUX77-KX	Rear Panel (1)
39[other]	SGPUX77-KE	Rear Panel (1)
[24-2	SKL296	Foot (1)
40	SMN1985	P.C.B. Bracket (1)
41	SHE170-1	P.C.B. Holder (2)
42	SUW3012	P.C.B. Bracket (1)
43	SHG6381	Rubber Holder (1)
44	SMX919	Insulation Cover (1)
45	LN061280P	LED Ass'y (1)
46	SJS804	Socket, 8 Pin (1)
47[XA,PC]	SJT388	Fuse Holder (2)
48	SHR301	Cord Clamper (4)
49	SJS51273SK	Socket, 12 Pin (1)
49	SJS51073SK	Socket, 10 Pin (1)
50	SJS5639	Connector, 6 Pin (2)
50	SJS5817	Connector, 8 Pin (1)
50	SJS5341	Connector, 3 Pin (1)
50	SJS5533	Connector, 5 Pin (1)

Ref.No.	Part No.	Description
51	SJT3607	Post, 6 Pin (2)
51	SJT3805	Post, 8 Pin (1)
51	SJT3311	Post, 3 Pin (1)
51	SJT3505	Post, 5 Pin (1)
52	SJT30343-V	Socket, 3 Pin (2)
52	SJT30543-V	Socket, 5 Pin (2)
52	SJS30943-V	Socket, 9 Pin (1)
53	SJT30439MB	Connector, 4 Pin (1)
53	SJT30539MB	Connector, 5 Pin (1)
53	SJT31139MB	Connector, 11 Pin (1)
54	SJT3215	Connector, 2 Pin (1)
54	SJT3321	Connector, 3 Pin (2)
55	SJT783	Connector Terminal (8)
56	SJS5215	Connector, 2 Pin (1)
56	SJS5331	Connector, 3 Pin (2)
SCREWS		
N1	XTB3+8JFZ	Tapping, ⊕ 3x8 (4)
N2	SNE4021	Nut (1)
N3	XTB3+8G	Tapping, ⊕ 3x8 (1)
N4	XTWS3+8T	Tapping, ⊕ 3x8 (1)
N5	XTW3+12Q	Tapping, ⊕ 3x12 (2)
N6	SNE2118	Power IC (2)
N7	XTBS3+8FFR1	Tapping, ⊕ 3x8 (2)
N8	XTBS3+8JFZ1	Tapping, ⊕ 3x8 (11)
N9	XTB3+6F	Tapping, ⊕ 3x6 (4)
N10	SNE2095-5	Cabinet (4)
N11	XTB3+10JFZ	Tapping, ⊕ 3x10 (2)
N12	XTB3+10J	Tapping, ⊕ 3x10 (4)
N13	XTB3+8J	Tapping, ⊕ 3x8 (1)
N14	XTBS3+8BFR1	Tapping, ⊕ 3x8 (1)
N15[XA,PC]	XYN3+C6FZ	Voltage Selector (2)
ACCESSORIES		
A1 [EK] ⚠	SFDAC05G02	AC Cord (1)
A1 [XL] ⚠	SJA173	AC Cord (1)
A1 [XA, PC] ⚠	SJA168-1	AC Cord (1)
A1 [other] ⚠	SFDAC05E03	AC Cord (1)
A2[XA,PC]	SJP9215	Plug Adaptor (1)
A3	SJP2257	Connection Cord (2)
A4 [EG]	SQF12744	Instruction Book (1)
A4 [Ei]	SQF12743	Instruction Book (1)
A4 [EK]	SQF12786	Instruction Book (1)
A4 [XA]	SQF12787-1	Instruction Book (1)
A4 [other]	SQF12742	Instruction Book (1)
PACKING		
P1 [EK]	SPG4703	Carton Box (1)
P1 [EF]	SPG5704	Carton Box (1)
P1 [XL]	SPG5705	Carton Box (1)
P1 [other]	SPG5702	Carton Box (1)
P2 [XL]	SPS4659-3	Pad, Left (1)
P2 [other]	SPS4659-2	Pad, Left (1)
P3 [XL]	SPS4660-3	Pad, Right (1)
P3 [other]	SPS4660-2	Pad, Right (1)
P4	SPS4775	Pad, Upper (1)
P5	SPP740	Polyethylene Bag (1)

■ EXPLODED VIEWS



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Parts Change Notice

Model No.
SU-X77 [EG]
SU-A200 [M, MC, E, EK, XL, XA, PA, PE]
SU-500 [E, EG, EF, EH, Ei, EB, XL, XA]
SU-700 [MC, E, EG, EF, EH, Ei, EB, XL, XA]

Please revise the original parts list in the Service Manual to conform to the change (s) shown herein. If new part numbers are shown, be sure to use them when orderring parts.

Reason for Change *The circled item indicates the reason. If no marking, see the Notes in the bottom column.

1. Improve performance	
2. Change of material or dimension	
3. To meel approved specification	
4. Standardization	
5. Addition	
6. Deletion	
7. Correction	
8. Other	

Interchangeability Code **The circled item Indicates the interchangeability. If no marking, see the Notes in the bottom column.

	Parts		Set Production	
A	Original	→	Early	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.
	New	→	Late	
B	Original	→	Early	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.
	New	→	Late	
C	Original	→	Early	New parts only may be used in early or late production sets. Stock new parts.
	New	→	Late	
D	Original	→	Early	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.
	New	→	Late	
E	Other			

Part Number

Model No.	Ref. No.	Original Part No.	New Part No.	Notes (*'**)	Part Name & Descriptions	
SU-X77	C711, 712	ECQM1H472JZ	ECQM1H392JZ	1, C	0.0039μF, Capacitor	
SU-A200	R121, 122	EROS2TKG1001	EROS2TGK8200	1, C	820Ω, Resistor	
SU-A200	R145, 146	ERD25FJ221	ERDS1FJ331	1, C	330Ω, Resistor	
SU-A200	R541	ERD25FJ221	ERDS1FJ102	1, C	1kΩ, Resistor	
SU-500/ SU-700	C701	ECEA1CU471	ECEA1CU221	8, C	16V, 220μF, Capacitor	

File this Parts Change Notice with your copy of the Service Manual.

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